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ABSTRACT

This report considers the various facets of metacognition and their relation to adult literacy. The first section provides definitions of literacy and discusses the issue of single versus multiple factor hypotheses. The second section looks at the foundation of research on metacognition and literacy development in children. It examines whether this research can be generalized to adults or whether its implications must be transformed in nondevelopmental models. The third section defines metacognition in the context of adult literacy. It considers the sparse research that has been done to date and suggests multiple directions for future research. The fourth section defines some individual variables that may affect metacognition: age, gender, and ability; cultural background and beliefs; personal language; and motivation and self-perception. The fifth section discusses instructional approaches designed to enhance both metacognition and literacy proficiency. The final section addresses assessment issues, including whether metacognition has been measured adequately in adults and how it might be measured to promote instruction and reflection. A conclusion offers speculations about future directions for research. Contains 63 references. (Author/YLB)

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METACOGNITIVE ASPECTS OF ADULT LITERACY

Scott Paris and Andrea Parecki
University of Michigan

NCAL TECHNICAL REPORT TR93-9
SEPTEMBER 1993

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METACOGNITIVE ASPECTS OF ADULT LITERACY

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Abstract

Metacognition about literacy refers to the reflective knowledge that people bring to various literacy activities. It may include knowledge about their own abilities and motivation, knowledge about parameters of the task that influence performance, and knowledge about appropriate strategies to use in different contexts. We believe that these kinds of knowledge undergird adults' implicit beliefs about the nature and uses of language and foster their personal theories about literacy. Metacognition is not static knowledge; it may include affective and motivational properties about literacy tasks and one's abilities. Thus, metacognition promotes self-appraisal and self-management of thinking and, therefore, is important for many reading and writing activities. We review research on metacognition and literacy in both children and adults to highlight the similarities and differences. Areas for future research in adult literacy are noted. We also review various instructional approaches to adult literacy and conclude that some, such as whole language and family literacy, can easily incorporate the concept of metacognition in the personal construction of literacy that is functional and collaborative. These instructional approaches, when coupled with innovative assessment methods that promote reflection on personal literacy development such as portfolios and self-reports of thinking, offer considerable promise for improving literacy among adults.

INTRODUCTION

This report considers the various facets of metacognition and their relation to adult literacy. In the first section, we consider the foundation of research on metacognition and literacy development in children. We examine whether this research can be generalized to adults or whether its implications must be transformed in non-developmental models. In the second section, we define metacognition in the context of adult literacy. We consider the sparse research that has been done to date and suggest multiple directions for future research. In the third section, we define some of the individual variables that may affect metacognition, such as age, gender, and ability; cultural background and beliefs; personal language; and motivation and self-perception. In the fourth section, we consider instructional approaches designed to enhance both metacognition and literacy proficiency. The final section addresses assessment issues, including whether metacognition has been measured adequately in adults and how it might be measured to promote instruction and self-reflection. Finally, we offer conclusions and speculations about future directions for research.

A. Overview of Terms and Theories

Some adult literacy researchers may view the construct of metacognition as gratuitous, as a term borrowed from research on children's cognitive development with little relevance for adult populations. To adult education teachers and practitioners, it may appear to be mere jargon from researchers who do not understand the problems faced by adult students. They may ask whether a discussion of metacognition and adult literacy is a forced marriage between two incompatible domains. What are the metacognitive problems of adults with low levels of literacy? Are they major impediments to achievement of literacy? Is there any research to substantiate the importance of metacognition in adult literacy? Is metacognition in adults and children distinctly different? This paper addresses these issues and suggests that much of the research and instruction in adult literacy can be merged with the underlying concerns of research on metacognition, regardless of the labels that are used to denote the awareness, concepts, misconceptions, and self-perceptions that might be included in various definitions of metacognition in literacy.

1. Definitions of Literacy

Most research in adult literacy begins with a definition because the way literacy is defined shapes the problems that are identified and the solutions that are offered. For example, when the definition of literacy is based on mastery of a hierarchy of component skills, adults can be classified on a theoretical scale of progress or mastery. Similarly, literacy can be defined according to hierarchies of use or function. Stedman and Kaestle (1987) traced the history of literacy definitions and noted the prevalence of both kinds of hierarchies. In the 19th century, literacy was often defined as the ability to sign one's name or read the Bible. Increasingly in the 20th century, more sophisticated notions of literacy led to definitions based on levels of functional literacy and skill development that were tightly connected to academic curricula. Two conclusions seem warranted from a review of definitions of literacy (cf., Venezky, Wagner, & Ciliberti, 1990). First, all definitions of literacy are essentially more political than scientific because they are intended to classify and certify people by ability or privilege. Second, definitions and measurements of literacy are necessarily interdependent because changes in one entail changes in the other. These themes were noted by Taylor and Dorsey-Gaines (1988) who asserted that, "Literacy is not a discrete event, nor is it a package of predetermined skills. The

complex, yet oversimplified boundaries that we have established so we can count, weigh, and measure literacy do not exist. They are of our own making" (p. 201).

Assessment has defined adult literacy de facto for most of the 20th century. Resnick and Resnick (1977) pointed out that the institutionalized tests of literacy established during World War I and used in subsequent years allowed large numbers of people to be tested for literacy and categorized by *objective* standards. The term *functional literacy* can be traced to the military's use of test scores to identify army personnel who were capable of comprehending different kinds of instructions for carrying out military functions. As Guthrie and Kirsch (1984) noted, this characterization of individuals as either literate or illiterate presumes that literacy is a state that can be measured objectively. Although this dichotomy may have worked adequately to classify individuals from the 17th through the 19th centuries who had not been exposed to print (usually those of low socioeconomic status or in colonized non-Western cultures), there is wide variation today in what constitutes literacy and non-literacy.

Throughout the 1980s, objective definitions of functional literacy were sharply challenged by researchers interested in the emergent literacy of children as well as the improvement of literacy levels in adults. Chall (1990) argued that literacy should be defined according to developmental stages that are tied to grade-equivalent competencies. Kaestle (1990) suggested a *reformist* position in which literacy definitions are aligned with social reform and promote greater participation in literacy among citizens. Guthrie and Kirsch (1984) argued that literacy should be interpreted according to the situations in which it is used and the purposes it serves and that these purposes are quite diverse across cultural groups, socioeconomic classes, and historical periods. They asserted:

> *Different types of reading demands have been shown to be associated with different sets of cognitive strategies or reading behavior. Thus, an individual cannot be characterized as literate or illiterate....We can gauge a person's degree of literacy by the match between that person's competencies and the demands of the material and the situation (p. 353).*

This type of definition makes measurement difficult and categorization of people as literate or illiterate impossible.

Other theorists have called attention to the idiosyncratic and personal nature of literacy (e.g., Heath, 1983). In their view, individuals construct and use literacy to serve self-defined goals. As Fingeret (1984) stated, "When reading is perceived as the interaction between a learner's way of viewing the world and the cues in the text, then the learner's experiential base and approach to constructing meaning take on new significance" (p. 11). This perspective is particularly important for adult literacy because of the wide range of purposes, experiences, and views held by adults.

It is not our intent to foreclose debate on definitions of literacy, nor to devote considerable discussion to a single definition. However, socially-situated and constructed views of adult literacy give special attention to the purpose and context in which literacy is used, and it is this social-contextual view of purposeful literacy in which metacognition becomes most important. The learner's perceptions of literacy, the appropriate strategies to use, and the motivation to engage in those strategies can be influenced by the individual's reflection on various tasks of literacy and self-perceptions of ability.

2. Single vs. Multiple Factor Hypotheses

A second fundamental issue needs to be addressed at the outset. Historically, many studies of literacy among children, adolescents, and adults have been driven by single-factor hypotheses, i.e., researchers have sought to examine the impact of a single factor upon the literacy skills of individuals. If, for example, one believes that decoding is fundamental to literacy and identifies a significant relationship between decoding and other literacy skills, this single factor may be used to promote a causal interpretation of the importance of decoding skills in literacy achievement. The history of literacy research is replete with similar examples. Decoding, vocabulary, sight words, comprehension strategies, authentic uses, and now perhaps metacognition, have all been proposed to be significant single factors in the development of literacy.

However, the conclusions of single-factor studies are invariably both true and false. They are true in the sense that they often identify factors that do affect later literacy development, but they are false in that they neglect the *relative importance* of the single factor in relation to the constellation of factors that may impinge on literacy development. Single-factor theories, which may be artifacts of simplified experimental methods, also presume uniform and universal characteristics of development so that their

importance in literacy proficiency can be generalized across a wide range of populations.

It is believed that many factors operate to affect the literacy proficiency of individuals and that these constellations of factors are not identical for all people in all situations. Thus, we might expect certain aspects of metacognition to be important for some adults using literacy some of the time, but not necessarily to be vital or significant for all adults using literacy in all situations. (This argument could be equally made for all other single factors, including decoding.) Further, situational variability, coupled with the multi-dimensional nature of metacognition, makes it very difficult to identify single causes and outcomes in literacy that are generalizable across large populations. Case studies, ethnographic studies, and other methods that examine multiple factors in ecologically valid contexts, however, can often indicate how metacognition directly influences the use of literacy in different situations. For example, in a case study, Johnston (1985) found that a variety of psychological and social factors influenced the reading ability of three low-level readers, including "anxiety, attributions, maladaptive strategies, inaccurate or nonexistent concepts about aspects of reading, and a huge variety of motivational factors" (p. 174).

Therefore, situations will be examined in which metacognition may play a significant role in the literacy of adults, but we do not suppose that metacognition is the most significant problem of all adults with low levels of literacy nor that all programs of instruction or remediation ought to be designed around metacognitive curricula. Metacognition is neither the cause nor the panacea for adult illiteracy, but it may be an important factor to be recognized by both researchers and practitioners.

B. Metacognition Research and Literacy Development in Children

Research on metacognition and children's development can be traced to the pioneering investigations of Brown (1978) and Flavell (1978). Brown emphasized the importance of revising one's actions in order to solve problems, remember information, or comprehend text. Flavell emphasized children's understanding of their personal abilities, the parameters of the task that could influence performance, and their awareness of strategies that would be appropriate and beneficial in various situations. Most researchers have continued to focus on the same strategies and kinds of awareness originally identified by Brown and Flavell. As metacognition entails reflection directed at evaluating and orchestrating one's own behavior and thinking, Paris and Winograd (1990) termed these processes *cognitive self-appraisal* and *cognitive self-management*. These constructs can be illustrated with examples of reading and writing across the lifespan.

1. Metacognitive Constructs of Self-Appraisal and Self-Management

Cognitive self-appraisal includes a personal evaluation of literacy tasks: Why am I reading this text? How difficult is it? How much should I revise this essay? It also includes questions about personal knowledge and abilities: What do I already know about the topic? Can I read and understand this document? Thus, cognitive self-appraisal of literacy strategies is knowing what strategies to use, how to apply them, and when and why they are effective (Paris and Winograd, 1990). When adults appraise literacy tasks, their abilities, and their strategies, they may or may not be accurate. Indeed, some reflections can be debilitating, e.g., when individuals do not attempt to read a text or seek challenging tasks because they believe they do not possess the ability. When this occurs, metacognition can lead to anxiety, pessimism, and avoidance of literacy, even perhaps to the point of deception, i.e., disguising one's literacy skills and continuing a cycle of humiliation and withdrawal from participation in literacy activities.

Cognitive self-management includes the ability to plan reading and writing activities, to monitor comprehension and communication, and to take steps to repair literacy when one's

goals are not achieved. For example, college students frequently reread text many times and take notes when they study. They may write reports in multiple drafts using proofreading, editing, and revising strategies to monitor and improve their content. These strategic literacy activities are prototypical examples of self-regulated learning in school as well as work settings. However, self-management can also go awry when adults make inappropriate plans for studying or revising, when they fail to monitor their understanding adequately, and when they do not know how to improve their own comprehension or composition.

As we shall see, many of the difficulties faced routinely by adults with low levels of literacy can be classified as metacognitive problems of self-appraisal or self-management. Unfortunately, there is a dearth of research on the topic, especially studies of adults' metacognition about literacy in nonacademic settings.

2. Metacognition and Literacy

Over the past 15 years, there have been many studies of children's ability to appraise and manage their own thinking, reading, and writing. This section focuses on reading, but additional information is available in Garner (1987) and Paris, Wasik, and Van der Westhuizen (1988). Many researchers have used interviews similar to those of Flavell's initial studies. Myers and Paris (1978), for example, compared second and sixth graders with regard to their knowledge of person, task, and strategy variables related to reading. Younger children overestimated their own abilities, seemed unaware of many task dimensions that affect reading difficulty, and were less aware of effective strategies than older students. Garner and Kraus (1981-82) interviewed seventh graders about their knowledge of reading and found that poor readers were unaware of the benefits of many appropriate reading strategies. Winograd (1984) measured eighth graders' knowledge of summarizing and found that poor readers did not understand the characteristics of good summaries, nor were they able to write appropriate summaries. In general, studies of children from kindergarten through eighth grade have found increasing ability over time to appraise one's thinking and to regulate one's reading. As children learn to read, experience more literacy activities in school, discuss their own thinking, and generally mature, they become aware of both strategies for planning, monitoring, and revising their reading and of person, task, and strategy variables that influence their literacy success (Baker & Brown, 1984).

Studies of good and poor readers have found that metacognition is a key characteristic that distinguishes successful

from less successful students. For example, Paris and Myers (1981) compared fourth graders who differed by more than two years in reading ability but were matched for age, sex, and mathematics achievement. Poor readers did not understand appropriate reading strategies nor use them during oral or silent reading. A series of studies by Wong revealed that children identified as learning disabled or poor readers had considerably less metacognition about reading than average or above-average readers. The lack of knowledge was highly correlated with children's reading and study behavior (Wong & Jones, 1982; Wong & Wong, 1986; Wong, Wong, & Perry, 1986).

Early studies of children's metacognition and reading noted problems in using verbal reports of children in interviews (Garner, 1987). Therefore, many researchers conducted intervention or instructional research to determine if better metacognition about reading could be taught and if it would have durable effects on children's literacy. Kurtz and Borkowski (1987) taught school children to use summarization skills and executive control strategies and found that appropriate summarization skills were highly correlated with metacognition and metamemory. They argued that early knowledge about metacognition and memory variables promoted the development of strategies such as summarization. Similar intervention studies have shown that students can be taught summarization strategies when explicit information is given about each strategy. Paris, Lipson, and Wixson (1983) referred to this information as declarative, procedural, and conditional knowledge, or more simply, what strategies are available, how they should be used, and when and why they are effective. Rinehart, Stahl, and Erickson (1986) successfully trained sixth grade students to use summarization strategies with detailed instruction, modeling, and feedback. Miller (1985) taught fourth graders to use think-aloud, self-referenced statements while reading in order to promote comprehension. Similarly, Dewitz, Carr, and Patberg (1987) taught fifth graders to use a self-monitoring checklist to help them evaluate when their answers to text questions made sense. This group was also trained to insert appropriate words in closed passages and showed significant advantages over other instructed and control groups. Short and Ryan (1984) improved metacognition in good and poor fourth-grade readers by teaching them elements of story grammar (the five "wh" questions), as well as better motivational attributions. Students were given feedback to praise themselves for a job well done and to attribute success to greater effort. Using the "wh" questions and attributing success to more thoughtful effort improved children's reading comprehension.

These kinds of studies have been incorporated in instructional packages that teach students multiple strategies for assessing their comprehension, monitoring their performance, and increasing their motivation and help improve their metacognitive knowledge about strategies and practice of those strategies. Paris, Cross, and Lipson (1984) instructed groups of third and fifth graders over a period of several months in a variety of reading strategies. The instruction included specific declarative, procedural, and conditional knowledge about the strategies and used analogies—e.g., "Be a reading detective"—to inform children of the kinds of thinking required for thorough text comprehension (Paris, Lipson, & Wixson, 1983). Metacognition was measured through interviews and reading performance with cloze tests and other reading tasks, both before and after instruction. The metacognitive instruction led to significant improvement on some of the comprehension and metacognitive measures. Palincsar and Brown (1984) designed a peer tutoring arrangement in which poor readers in seventh grade were taught four strategies for monitoring comprehension as they read text together. The use of this *reciprocal teaching* method of instruction led to significant gains in reading comprehension.

The success of these interventions led researchers to study whether the same beneficial effects could be observed for students when their teachers provided the instruction. In a series of studies conducted by Duffy et al. (1987), third grade teachers were taught how to analyze their basal reading activities and to design metacognitive lessons; the reading comprehension of poor readers improved on a variety of tasks. Similarly, Paris and Oka (1986) observed that teachers who used group-administered lessons about reading strategies improved children's metacognition about reading as well as their comprehension. The key to successful metacognitive interventions may be the dialogues that teachers encourage. All of the successful programs provided opportunities for students to talk about their appraisal and management of literacy tasks and to discuss their cognitive and motivational demands. Teachers did not just lecture or model *correct* literacy strategies; instead, they provoked students to consider their own beliefs and practices and to share their reflections. These Socratic dialogues helped to inform students about each others' strategies and multiple ways of reading and writing. Thus, the discussions contributed to students' personal theories about literacy by providing more information about how to appraise and manage their own learning.

The momentum of research on metacognition and motivation in children's literacy development has pushed literacy definitions

and instruction away from skills-based models to focus more on the uses of literacy in different contexts. Paris and Wixson (1987) noted that contexts can be described according to the *access to literacy* they provide to the individual: *access to resources*, such as documents, libraries, computers, and so forth; *access to instruction*, such as peers, teachers, print models, etc.; and *access to participation*, such as frequent writing and reading for authentic purposes, collaborative literacy events, and time and money for participation. Children's access to literacy is frequently tied to school resources and opportunities because school is the primary context for their literacy development. Adults depend more heavily on access to literacy activities at home and in the community and thus must seek and control their access to literacy contexts more than children.

C. Adult Literacy and Future Metacognitive Research

1. Significance of Metacognitive Research on Children

What is the significance of metacognitive research on children for understanding adult literacy? First, it has created new hypotheses about the factors that influence literacy development that go well beyond the traditional emphasis on decoding and vocabulary as the fundamental building blocks of literacy at all ages. Interviews with children have revealed a wide variety of misconceptions about reading that may undermine learning to read, and these kinds of misconceptions may operate in adults as well. Second, the pedagogical research has demonstrated the beneficial role of metacognitive instruction on subsequent performance. Whether or not metacognition is a serious component of low levels of literacy in adults, it may be that instruction to promote better metacognitive understanding may also promote literacy proficiency. In addition, research on metacognition in children has substantiated the value of a wider range of techniques for understanding individuals' reflective knowledge about their own thinking and reading. Interviews, think-aloud protocols, questionnaires, stimulated recall, observations of peer tutoring dialogues, and the ability of individuals to monitor and revise their comprehension during oral and silent reading have provided a great diversity of measures to assess readers' metacognition. Also, most research on metacognition has been sensitive to the rich variety of strategies that can be used by students of different ages to solve different kinds of tasks. Finally, as emphasized by Paris and Winograd (1990) and others, metacognition includes motivational attributions and beliefs, self-referenced ideas about *will* as well as *skill*. Certainly, reflections on one's ability and motivation combine with one's knowledge about cognitive parameters of literacy tasks to influence performance.

Thus, metacognitive approaches to literacy learning seem especially well suited to readers who differ in age, ability, purpose, motivation, and social context. Rather than examining uniform aspects of metacognition or static knowledge about reading and writing regardless of the context, researchers have tried to address the specific knowledge that readers may have about a given text or situation that may impede or facilitate their interaction with print. These characteristics of metacognitive research on children have direct bearing on metacognitive research with adults because of

the enlarged perspective that they provide. Researchers and teachers of adult literacy can consider whether some adults are hindered in their learning because of their inadequate knowledge about cognitive dimensions of literacy and, if so, how that knowledge or set of beliefs may be rectified.

Paris and Wixson (1987) outlined the implications for adult literacy instruction of metacognition and the integration of skill and will. First, literacy instruction should be relevant and meaningful and make the individual's abilities and needs the starting point. Second, it should include opportunities for students to learn concepts about literacy, such as self-appraisal and self-management, that can embellish personal theories of literacy and learning. Third, instruction should challenge and motivate by operating at a level just beyond the individual's current level of independent success. Finally, instruction should help individuals to take control of their own reading and writing. These characteristics of instruction can promote literacy development in both children and adults.

Research on concepts of literacy and text-processing strategies has usually involved college students or working adults with a range of literacy abilities but rarely non-literate adults. Day (1986) examined summarization skills of junior college students and found that poor readers were more dependent on explicit instructions to summarize text than were good readers. In their interview study, Gambrell and Heathington (1981) found that poor adult readers were less aware than good adult readers of the benefits of strategies, often had fundamental misconceptions about them, and did not understand when or why specific strategies would be helpful. The poor adult readers were comparable to 8- and 9-year-olds in their metacognitive knowledge about reading, which may suggest that the relationship between metacognition and reading is more closely related to reading skill than chronological age (for similar studies, see Kaufman, Randlett, & Price, 1985; Rinehart & Platt, 1984). Hare and Pulliam (1980) studied whether college students' metacognitive knowledge about reading was related to their reading achievement, as measured by a standardized reading test, and found that students with the most awareness about reading behavior had the highest scores. Thus, adults' metacognition about reading has been measured by summarization skills and their ability to plan, monitor, and revise comprehension. All of these aspects of metacognition are related to reading performance in adults. Like the research with children, this parallel relationship between metacognition and reading has

led many researchers to suggest the need for metacognitive interventions and instructions for adults with low levels of literacy.

2. Future Directions for Research

While research on metacognition and adult literacy is only just beginning, there are promising avenues for additional inquiry in at least four areas.

A. Misconceptions about Language and Literacy

One area for additional research concerns the misconceptions that adults have about language and literacy. Anecdotal reports indicate that some adults believe that reading quickly and accurately sounding out each word are characteristics of skilled reading. Others believe that guessing or skipping words is an indication of poor literacy rather than an appropriate strategy. These misconceptions often lead to inappropriate reading behavior and humiliating perceptions about one's own abilities. Cognitive conceptions of reading as constructing meaning or enhancing social communication also often escape adults with low-literacy proficiency who have had so many years of training in decoding skills that they are naive about the cognitive and social aspects of literacy. However, it seems likely that adults share only a subset of the misconceptions that young children have about language. For example, concepts about print and text structure that 5- and 6-year-olds do not understand may not pose problems for adults whose problems may center on the cognitive aspects of strategy use and the social aspects of purposes and demonstration of literacy.

Misconceptions about literacy may also be prevalent among adult immigrants to America who have some literacy proficiency in their native languages but not in English. They may not understand American schooling and typical educational practices in language arts, and therefore be disenfranchised from helping their children learn English and adjust to school. Further research is needed to find out the extent of naive understanding and misconceptions that adults have when they approach literacy activities. In addition, more attention needs to be given to differences in literacy across languages of multilingual adults.

B. Adult Strategies

A second area for further research concerns the strategies that adults use. Interview studies have revealed that adults often do not understand how to identify main ideas, make accurate summaries, skim appropriately, or reread and paraphrase. These difficulties

may be shared with children and may represent metacognitive levels of understanding associated with reading skill rather than age, i.e., the lack of knowledge about strategies is related to the limited learning rather than naiveté of youth. However, many adults use literacy, or at least confront it, in a variety of situations in which children do not. For example, most adults with low levels of literacy encounter text in forms, schedules, instructions, and job-related tasks in which they must use specific strategies rather than general narrative text processing strategies. It is unclear whether adults, particularly those who rely on social services such as welfare that require reading and writing for access, have accurate knowledge about specific strategies to understand and use documents that may pose particular problems for them.

Providing compelling evidence to debunk many stereotypes about illiteracy among inner city populations, minorities, and the poor, Taylor and Dorsey-Gaines (1988) documented the rich literacy activities they observed in neighborhoods where people used literacy to pass on family histories, keep in touch with friends without telephones, and improve their education and job skills. They described Jerry, who, while a prisoner, educated himself in the law; Iesha, a young woman who liked to write letters "that make people have to go to their dictionary to understand what I was saying to them" (p. 172); and Tanya's mother, who, painstakingly and with imperfect grammar, wrote her life story in a letter to her children before she died. While these individuals might be classified as having low-literacy skills by some measures, they used reading and writing for daily survival and enrichment. More attention needs to be given to these and similar adult literacy activities.

C. METACOGNITION IN THE WORKPLACE

The third area of needed research concerns metacognition in the context of job-related literacy activities. Diehl and Mikulecky (1980) found that nearly all workers reported some kind of reading on their jobs, although most adults reported that the literacy demands were minimal and did not interfere with their ability to do their jobs. Metacognition in the workplace includes problem-solving as well as literacy activities, but it is important to identify the kinds of print demands of the workplace. For example, some corporate training programs specifically use symbols rather than print (e.g., McDonald's) to train employees who have difficulty reading. A study of workplace literacy is essential because the demands and social context of literacy will elicit or require different levels of metacognition among different adults. Many adults who enroll in literacy training classes have specific motives

related to their jobs so the motivational and metacognitive reflections of these adults can be very informative to teachers.

Denny's study (1989) of how four men with marginal literacy skills adapted to literacy demands at work provides insight into adult male metacognition. Denny found that each man used unique strategies that worked well for him in comprehending text; one relied on prior knowledge, while another relied on paraphrasing. All four men used better strategies on job-related text, presumably because they had adapted and used the strategies effectively over several years. Denny noted that the men displayed metacognitive awareness of their reading problems but less awareness of the things that good readers do. Their misconceptions and lack of awareness about what makes someone a skilled reader may have impeded their learning. She concluded that reading was important to each man, that each created literacy strategies to cope with demands of text on the job, that each man focused on his weaknesses in his perception of his own literacy development, and that the literacy abilities of all the men exceeded the levels predicted by their test performance. This study helped to reveal the motives, strategies, and self-perceptions of adult male readers who want to read and who successfully cope with literacy demands despite marginal literacy skills as measured by tests.

D. SELF-PERCEPTION AND PERSONAL MOTIVATION

A fourth area of needed research concerns adults' personal theories about literacy. A growing trend in research on cognitive development and educational psychology is to identify the theories that people construct about their education, their academic tasks, and themselves as learners. From this perspective, metacognition is more than specialized bits of isolated knowledge. Rather, it is embedded in a personalized theory about oneself and the use of literacy. This is a promising avenue of research because it brings motivation and self-perception into metacognition, not just cognitive appraisal and management of one's thinking while reading or writing. Kohl (1992) provided the vivid example of Wilfredo, an elderly Hispanic man who refused to learn to speak English. He was not illiterate, but he was afraid that his grandchildren would never learn Spanish if "he gave in like the rest of adults and spoke English with the children" (p. 1). His cultural identity was at stake, and he wanted to preserve his language and literacy practices as part of his legacy. Clearly, many adults may avoid becoming more literate in English because it poses a threat to their native cultural identity, or they may eschew literacy if it contradicts their personal theories or identities. More

research needs to be conducted to determine how and when literacy serves to enhance or detract from the image and well-being of adults.

E. PERSONAL CHARACTERISTICS AFFECTING METACOGNITION

As discussed above, there is a remarkable paucity of metacognitive research on misconceptions, strategy knowledge, workplace demands, and personal theories about literacy. It is important, in addition, to investigate each of these areas against the backdrop of the characteristics of individuals and their purposes for acquiring literacy. Thus, future research should provide data on at least the following four categories of variables: (1) age, gender, and abilities; (2) cultural background and beliefs; (3) impact of dialects and multilingualism; and (4) motivation and self-perception.

The first includes the age, gender, and abilities of adults acquiring literacy. For example, does metacognition about literacy vary from age 20 to age 70? It seems likely that there are strong cohort effects that reflect different educational priorities as well as different adjustments that adults have made over the years to various literacy demands. The examination of age effects is important because of the renewed emphasis on intergenerational literacy among children, parents, grandparents, and extended family who can help each other to acquire literacy. More studies need to be conducted on the metacognitive knowledge of men and women at different ages and on their different literacy proficiencies. Just as literacy cannot be conceived as a simple, all or none characteristic of adults, neither can metacognition be considered simply present or absent, adequate or inadequate.

The second category of variables includes the cultural backgrounds and beliefs that adults bring to adult education settings. This is particularly important in the U.S. because many adults are non-native English speakers and unfamiliar with American schooling. Their diverse cultural backgrounds may interfere with their acquisition of English because of their confusion about the alphabet and irregularity of sound-symbol relations, lack of knowledge about instruction, beliefs about teachers, and beliefs about the value and uses of literacy. Adults from some cultures may believe that literacy is basically recitation or repetition and acquired through rote memorization. People with these beliefs may have great difficulty if their instructional program does not coincide with or reinforce those beliefs.

The third category of variables concerns the impact of dialects and multilingualism on adults. For example, is the vernacular of different cultural minorities acceptable to teachers of adult literacy? Are dialects and blended languages seen as strengths or liabilities? It may be that speakers of different dialects and different languages bring to the task of learning English a variety of metacognitive beliefs about language that may impede their English literacy acquisition, especially if they conflict with the views of teachers. The beliefs of the community must be considered because the relationship established between teachers and adult learners is critical for their continued engagement in literacy programs.

The fourth category of variables includes motivation and self-perception. This is an important area because there are many reasons why adults choose to pursue further literacy education. Beder and Valentine (1990) found 10 basic reasons for enrolling in adult basic education: self improvement, family responsibilities, diversion, literacy development, community/church involvement, job advancement, launching, economic need, educational advancement, and urging of others. Men and women of different ages and abilities expressed different reasons for their pursuit of adult education, and their reasons were distinctly personal. The intensity of their motivation and the persistence of their educational efforts may depend upon their metacognitive beliefs about the length of training necessary to make a difference, their personal ability or efficacy to profit from education, and their faith in the particular method of instruction that they have chosen. Thus, metacognition about literacy and their situation may affect their motivation and success. An analysis of these reasons may identify the deterrents to and facilitators of parataicipation in literacy programs.

Each of these variables impacts the success of any literacy intervention program because the characteristics, cultural backgrounds, previous languages, and motivation that adults bring to literacy situations will affect their learning. The importance of fit between the literacy program and the individual's beliefs, experiences, and characteristics is evident when we examine various instructional approaches for literacy learning among adults.

These five areas of research are natural extensions of previous interview studies and research on adults with low levels of literacy. They parallel, to some extent, research on children, adolescents, and college students and are predicated on cognitive, constructivist, socialized, and purposeful uses of literacy in a

variety of situations. What is needed is a redefinition of adult literacy that encompasses the concepts and feelings that adults bring to literacy situations so that narrow definitions and measures do not constrain our understanding of the role of literacy in the broad spectrum of adult activities.

D. Instructional Approaches for Improving Adult Literacy

Although there are a variety of instructional approaches designed to increase adult literacy, most are derived from pedagogical models. At one end of the continuum are approaches that emphasize decoding and phonics instruction. At the other end are those that emphasize the construction of meaning and the application of literacy for solving problems in the learner's environment. In between are a host of interactive approaches that emphasize both decoding and meaning construction, most of which are pale imitations of elementary school formats in which teachers provide direct instruction, repeated practice, and successively more difficult reading materials. As Cuban (1986) noted, "[S]uch work requires little application of concepts, little imagination, and little serious inquiry" (p. 10). These models of reading and the roles of teachers are reinforced by adult volunteers, former teachers, and instructors trained in traditional views of reading disability with children. This section considers approaches representative of each end of the continuum and contrasts them with an approach that is distinctively adult-centered, i.e., family literacy.

1. Decoding and Phonics

One end of the continuum emphasizes the importance of cracking the code, i.e., improving sound-symbol correspondence and decoding. This approach is based on the common finding that beginning readers, children who are poor readers, and adults with low levels of literacy all share low levels of phonological awareness (Pratt & Brady, 1988; Read & Ruyter, 1985). These groups have difficulty segmenting speech, identifying phonemes, reading unfamiliar words, and spelling irregular words. The demonstration of poor phonological awareness among adults with reading problems has been used to support two claims: (1) literacy learning is similar, regardless of age, and phonological awareness and decoding are the fundamental building blocks (Chall, 1983) and (2) effective remediation of adults with low levels of literacy must first teach phonics skills as the primary goal of instruction. These claims were virtually unchallenged in the 1960s and 1970s but have been increasingly criticized in the last 10 years.

Challengers assert that the first claim—the pedagogical similarity of adults and children in learning to read—ignored the

metacognitive and motivational differences between children and adults. Fingeret (1984), among others, argued that adults come to the task of learning literacy with much greater knowledge and more diverse experiences than children. This includes metacognitive knowledge about text, themselves, and the variety of literacy activities in their environment. Their expectations may include self-defeating attributions for failure, lack of effort and persistence, and feelings of shame and embarrassment. Most researchers today conclude that even if children and adults share the same problems with phonological awareness and decoding, these problems may not have the same origins or the same meaning for each group.

Critics of the second claim—that phonics is the primary goal of instruction—point out that adult learners have already failed to benefit from years of phonics and decoding instruction, and repetition of this same approach is demeaning and demoralizing. Adults who find that adult education programs offer the same type of instruction they could not master years earlier often leave after a few months of attendance. Although decoding skills are important and beneficial correlates of success, literacy learning includes much more than decoding. Phonics instruction often ignores the cognitive strategies, metacognitive awareness, and motivational underpinnings that are so vital for skilled literacy among children and adults of all ages. It is the personal strategies and beliefs that provide the currency for extended literacy interactions, and these can only be provided by offering authentic literacy activities in the lives of adults.

2. Construction of Meaning

During the 1980s, considerably more attention was given to instructional approaches that emphasized the construction of meaning. Some of these approaches provided direct instruction of comprehension skills and strategies to adult learners. Others were based on models of language experience and whole language instruction. An example of the whole language approach is the Academy at Eastern Michigan University (Soifer et al., 1990). This model of adult literacy instruction was implemented in a Ford production plant where workers could attend classes several times each week before and after their regular shifts. The instruction was based on eight guiding principles:

- Education provides the means for people to make decisions about their daily lives.
- The educational backgrounds, personal experiences, language, and cultural backgrounds of learners must be respected.

- Success from the beginning is important to help adults create positive self concepts.
- Instruction should promote adults' responsibility and self-control of their own learning.
- Teachers act to facilitate, plan, and guide instruction in a collaborative manner.
- Teachers model and provide guided practice with specific strategies that are appropriate for adult learners.
- The physical and psychological climate must support the quality of teaching and learning.
- Assessment is an ongoing and important process of learning and the celebration of success ought to be the focus of evaluation.

Soifer et al. (1990) described the curriculum, materials, and teaching approaches they developed in working with adults with low levels of literacy for more than a decade. Like many whole language approaches with children, their lessons often began with uninterrupted, silent, sustained reading and writing activities based on the experiences of the learners. Learners were free to select a wide variety of materials reflecting their interests and needs, and they were encouraged to talk about their experiences in writing and reading in small groups of fellow learners. Teachers encouraged success by providing methods that bridged learners' experiences and abilities with increasing challenges for reading and writing. They encouraged multiple rereadings and rewritings as well as comprehension of job-related tasks. Forms, manuals, instructions, computers, and other work-related literacy activities were often incorporated in instruction. These kinds of approaches have been successful in the U.S. and throughout Canada and Britain (Hautecoeur, 1990).

The Academy illustrates a whole language philosophy that promotes strategic and purposeful reading. Students are taught to recognize the purposes of literacy, to seek information actively as they read and write, to monitor their communication and comprehension, and to connect literacy to their daily lives. Teachers act as facilitators and coaches who bridge the oral language skills of students to reading and writing. This is a promising approach and a strong alternative, or at least supplement, to phonics-driven approaches.

3. Integration of Social Factors

Instructional approaches that emphasize meaning have been blended with approaches that emphasize the social and community aspects of adult literacy. Kazemek (1988) argued that literacy education for adults must be integrated with social, economic, and political concerns. He pointed out that community-based programs that address the needs of adults have a 60-70% completion rate compared to the 25-50% completion rate for traditional literacy programs. It is the adaptability and suitability of community-based programs that serve the needs of adult learners better than traditional programs that emphasize decoding, phonics, and mastery of elementary reading materials. Kazemek, like many others, stressed the social nature of literacy and the different ways of knowing among adult learners. He described the virtues of collaborative learning circles that involve small groups of students, a facilitator who animates and focuses the group, and activities that involve conversation, journal writing, and reading with the assistance of others. Reading, writing, speaking, and listening are integrated with activities that are meaningful to the participants in this social view of literacy. These are the shared virtues of social-contextual approaches to literacy and have much promise for adults' instruction. Although these approaches may not call what they do *metacognition*, discussions about text, prior experiences, and motivation provide opportunities for individuals as well as groups to reflect on literacy learning.

4. Family Literacy

It is now recognized that grounding literacy instruction in social collaborative groups with authentic purposes promotes motivation, metacognition, and appropriate strategies. Perhaps the most important example of such a powerful social group is the family. Whether defined as parent-child, child-sibling, grandparent-child, or other configuration, the assistance of family members to accomplish goals together and share success provides positive interactions for literacy acquisition.

The basic tenet of family literacy instruction is that no classroom can make up for the lack of literacy activities in the family. It is well known that many children have precious few parent-child interactions with books and texts and that the lack of shared literacy often leads to educational difficulties for children. What may be less apparent, however, is the fact that parents often have the desire to interact with their children but do not have the literacy skills or metacognitive knowledge themselves to help. Indeed, one of the main reasons that adults enroll in adult basic

education programs is to acquire better literacy skills in order to help their children who are experiencing difficulties in school. Unfortunately, they are often single parents, have had incomplete or unhappy experiences in school, or have a strong desire but little knowledge about how to help their children. Thus, they often transmit to their children the same school practices that were unsuccessful for them. This is another liability of traditional instructional approaches that place a premium on decoding and ignore meaning construction and communication.

Auerbach (1989) challenged many prevailing views regarding family literacy. According to Auerbach, literacy-impoverished families have many literacy activities at home and value literacy highly. Further, literacy instruction is not always from parent to child; it may help children, but it may also help parents acquire better literacy. Also, the successful family context provides a range of literacy activities and experiences and avoids *doing literacy* in the same ways as a school setting. Auerbach also asserts that school is just as important as the home in inculcating values about the importance of literacy. The connection between parents in the home and teachers in the school is critical for success of children with limited language and literacy skills. Finally, parents are not the problem and may not be blamed for the literacy difficulties of their children. Rather than attributing blame, more consideration ought to be given to the needs and strengths of parents and the positive contributions they make so that the dynamics of family literacy can be better understood and facilitated.

Auerbach advocated a participatory curriculum in which literacy is a tool for shaping the social context. She identified five key aspects of family literacy that are the foundation for successful intervention: (1) parents work independently on reading and writing so that they develop their own literacy skills; (2) families use literacy to address family and community problems and to solve daily problems in a purposeful way; (3) parents provide mutual support and dialogues so that families can develop their own strategies for dealing with issues such as discipline, drugs, and television that confront families every day; (4) families build on the values and strengths of parents to provide positive self-concepts and positive views of academic achievement; and (5) families develop a cooperative attitude toward teachers and schools so that schools and families reinforce similar values and practices. These principles reinforce socially shared metacognition and motivation like other effective practices with children.

There are many family literacy programs that exemplify these principles. Edwards (1991) reported on one that promotes early

literacy through parent coaching. In this approach, parents are taught how to hold children's attention, ask questions, interact with text-relevant comments, and provide feedback to children. These elements of shared reading provide mutual benefits to children and adults and offer particular promise for adults with limited literacy skills who can learn along with their children with simple materials and effective cognitive strategies. The approach fosters positive self-esteem and avoids embarrassment. Subsequently, Edwards (1992) found that adults who participated in the Parents as Partners Program had valuable advice to offer to other adults. They were reflective and metacognitive about effective teaching and learning strategies.

The value of intergenerational literature programs is exemplified by Even Start, which is designed to empower parents to improve the literacy of their families. As Daisey (1991) pointed out, intergenerational literacy programs shift the focus for treating illiteracy from emphasizing the individual problem to promoting the strengths of family members to help one another acquire literacy. Shared reading activities and positive motivation are key elements to these programs. There are several successful models for family literacy activities including the Collaborations for Literacy model at Boston University, the Parent Readers Program at City University of New York, and the Kenan Trust Family Literacy Project in Kentucky and North Carolina. All of these projects involve tutoring sessions for parents so that they, in turn, can help promote the literacy of their children. The programs address family needs, job-related skills, and family motivation. Daisey concluded that these programs are successful and provide effective models for future intervention. We would add that they are all compatible with metacognitive approaches because the conversations about literacy can stimulate participants to reflect on dimensions of literacy, their motivation, and their success.

5. Fundamentals of Effective Literacy Instruction

It appears that the most effective programs for teaching adults with limited literacy skills how to read and write include four fundamental characteristics: (1) instruction promotes metacognition about reading, writing, and appropriate strategies to use; (2) the social context provides authentic purposes and meaning for the participants; (3) other people provide positive motivational support for adults in collaborative learning arrangements; and (4) the materials and guided practice provide a high level of success and utility for adults' efforts for learning to read and write. These characteristics of effective instruction can be blended in novel approaches, but metacognitive discussions, or

opportunities to reflect on literacy and one's own developmental progress, are crucial in many of them.

E. Assessment of Adult Literacy

Like instruction, the assessment of adult literacy is rooted in traditional skill-based models of literacy and pedagogical models of literacy development. Neither of these is conducive to new approaches to the development of adults' functional literacy in a social context. Furthermore, as Ehringhaus (1990) noted, assessments of literacy have deep traditions in psychometric measurement in which literacy is often regarded as a trait similar to intelligence. This psychometric notion, with its emphasis on validity and reliability, may be inappropriate for assessment of literacy processes, especially as they relate to adults' varied uses of literacy for authentic purposes. Indeed, Ehringhaus noted that ecological validity has been missing from assessments of literacy for at least the last 10 years despite eloquent pleas by Guthrie and Kirsch (1984) and others. Kazemek (1988) reminded us that, "The kinds of tests and assessment procedures adults in literacy programs encounter may impede them even more than curriculum materials and instructional strategies. These assessments tend to undermine adults' self-confidence, instead of empowering them" (p. 482).

The importance of assessment for metacognition becomes apparent when we consider the dearth of research on adults' metacognition. There simply are too few methods and too few empirical studies of adults' awareness of literacy and themselves as literacy learners. The new theories of adult literacy emphasize situated cognition and motivation, that is, the kinds of thinking and motivational beliefs that adults bring to various literacy activities. Notions of traits and skills may not be as informative as measures of adults' understanding of how to go about using literacy in these different situations. Interviews, surveys, think-aloud techniques, and other methods are needed to evaluate the kinds of planning, monitoring, and revising that adults do in these situations. Thistlewaite (1986) suggests involving adult learners in the dialogue so that they can contribute to the discussion about their goals, expectations, progress, and perceptions. They can reveal their literacy in diverse performances that reflect the functions that literacy serves in their lives.

Assessment must interrogate the kinds of knowledge that adults have about task variables, appropriate strategies, and relevant personal processes that learners bring to the situation in order to use literacy effectively. These assessments can be gathered with a variety of imposed methods, and they may also be inferred

indirectly from spontaneous comments and performance. One method for collecting evidence about adults' metacognition is through stimulated reflection. We can ask adults about the meaning of literacy events, the importance of strategies, and the methods of instruction that they are using to acquire literacy. The reflections can be collected in conversations or from thinking journals. A second method is to use portfolios, collections of students' ideas, performances, and reflections over time to document progress and accomplishments. Portfolios offer a wide variety of methods for collecting adults' self-assessments in order to document their own learning strategies and attitudes. Metacognition can be stimulated among adults who reflect on their own strengths and weaknesses and describe them to others. It is *thinking made public*, yet thinking journals and portfolios both provide a sense of personal communication with teachers. These kinds of expanded notions of assessment will be needed in order to accommodate the variety of skills and knowledge that adults bring to literacy learning. They will also be required in order to document learning within innovative and collaborative learning situations because the learner's understanding and perception of the situation are so clearly related to the success of the intervention.

F. CONCLUSION

Kazemek and Rigg (1985) have labeled adult literacy America's *phoenix problem* because a new crisis seems to be identified every 12 years, but interest in the problem seems to fade and a decade later a similar crisis arises from the ashes. They assert:

> *The problem of adult illiteracy in the United States exists and appears to be getting worse because of mistaken assumptions about the nature of literacy. These mistaken assumptions result in definitions of adult literacy which are arbitrary or abstract and which are unsupported by empirical research. Moreover, these assumptions have resulted throughout the decades and continue to result in a host of inappropriate teaching materials and strategies and the continual funding of misguided training programs for adults (p. 18).*

We do not believe that metacognition is a transient solution or another version of the phoenix to arise and disappear. We believe that an emphasis on metacognitive knowledge and on the beliefs that learners bring to literacy learning activities is crucial for their learning and enjoyment of literacy. We have tried to illustrate some of the background research and theories that support the importance of metacognitive approaches for instruction and practice. We believe that metacognition by itself is not the answer, but that facilitating adults' understanding of literacy in the context of authentic purposes and collaborative learning can promote self-regulated learning to a greater degree than traditional approaches that emphasize only isolated drills and language processes. It seems to us that the underlying value of metacognition is that it provides credibility and validation for learners' perspectives on their use of literacy. Such a view can empower learning and instruction for all participants.

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